



*Information and Technology for Better Decision Making*

# **2012 Post-Election Voting Survey of the Active Duty Military**

## **Statistical Methodology Report**

Additional copies of this report may be obtained from:

Defense Technical Information Center

ATTN: DTIC-BRR

8725 John J. Kingman Rd., Suite #0944

Ft. Belvoir, VA 22060-6218

Or from:

<http://www.dtic.mil/dtic/order.html>

Ask for report by Report ID

**2012 POST-ELECTION VOTING SURVEY OF THE  
ACTIVE DUTY MILITARY:  
STATISTICAL METHODOLOGY REPORT**

**Defense Manpower Data Center  
Human Resources Strategic Assessment Program  
4800 Mark Center Drive, Suite 04E25-01, Alexandria, VA 22350-4000**

## Acknowledgments

Defense Manpower Data Center (DMDC) is indebted to numerous people for their assistance with the *2012 Post-Election Voting Survey of the Active Duty Military (2012 PEV5)*, which was conducted on behalf of the Office of the Under Secretary of Defense for Personnel and Readiness (OUSD[P&R]). The survey program is conducted under the leadership of Kristin Williams, Director of the *Human Resources Strategic Assessment Program (HRSAP)*.

DMDC's Statistical Methods Branch, under the guidance of David McGrath, Branch Chief is responsible for the data processing, sampling, and weighting methods used by HRSAP. Fawzi al Nassir, SRA International, Inc., supervised the sampling and weighting processes, and provided consultations and overall process control. The lead statistician was Owen Hung, SRA International, Inc., who used the DMDC Sampling Tool to design the sample. He also developed weights for this survey. Susan Reinhold and Carole Massey provided the data processing support. Fawzi Al Nassir, Eric Falk and Owen Hung wrote this methodology report.

# 2012 POST-ELECTION VOTING SURVEY OF THE ACTIVE DUTY MILITARY: STATISTICAL METHODOLOGY REPORT

## Executive Summary

The Uniformed and Overseas Citizens Absentee Voting Act of 1986 (UOCAVA), 42 USC 1973ff, permits members of the Uniformed Services and Merchant Marine, and their eligible family members and all citizens residing outside the United States who are absent from the United States and its territories to vote in the general election for federal offices. These groups include:

- Members of the Uniformed Services including Army, Navy, Air Force, Marine Corps, Coast Guard
- U.S. citizens employed by the Federal Government residing outside the U.S., and
- All other private U.S. citizens residing outside the U.S.

The Federal Voting Assistance Program (FVAP), under the guidance of USD (P&R), is charged with implementing the UOCAVA and evaluating the effectiveness of its programs. The FVAP Office asked DMDC to design, administer, and analyze post-election surveys on military member's voter participation, spouses of active duty, voting assistance officers and local election officials. Without such surveys, the Department will not be able to assess and improve voter access. In addition, such surveys fulfill the 1988 Executive Order 12642 that names the Secretary of Defense as the "Presidential designee" for administering the UOCAVA and requires surveys to evaluate the effectiveness of the program in presidential election years.

The objectives of the 2012 post-election surveys are: (1) to gauge participation in the electoral process by citizens covered by UOCAVA, (2) to assess the impact of the FVAP's efforts to simplify and ease the process of voting absentee, (3) to evaluate other progress made to facilitate voting participation, and (4) to identify any remaining obstacles to voting by these citizens. Surveys were done on military members, military member spouses, voting assistance personnel, and local election officials in the U.S.

This report focuses on the *2012 Post-Election Voting Survey of the Active Duty Military (2012 PEV5)*, which was designed to capture the attitudes and behaviors of active duty military members throughout the world. This report describes the sampling and weighting methodologies used in the *2012 PEV5*. Calculation of response rates is described in the final section.

The population of interest for the *2012 PEV5* survey consisted of active duty members who are members of the Army, Navy, Marine Corps, Air Force, Coast Guard, and all Selected Reservists. In addition, members of the population must: (1) have at least 6 months of service at the time the survey is first fielded, (2) be U.S. citizens, (3) be at least 18 years old, and (4) be below flag rank at survey fielding.

The survey administration period lasted from November 7, 2012 to January 16, 2013. A sample of 60,273 active duty members and 29,726 Reserve component members was selected from the corresponding eligible populations of 1,391,347 active duty members, and 824,944 Reserve component members respectively. The Reserves sample consisted of two elements, those who are AGRs and activated Reserves (9,988 members) and all other Reserves (19,738 members). Of interest is the active component sample which covers active duty members and AGRs. The total active component sample was 70,261; the total other Reserves sample was 19,738. The reason for including other Reserves in the sample is to account for Reserve members who were activated after sampling. Based on updated personnel records and self-reported data, a total of 87,071 sample members (68,838 active component and 18,233 other Reserves) were ultimately determined to be eligible for the survey. Usable questionnaires were returned by 10,611 members (10,307 active component and 304 other Reserves).

The 2012 *PEV5* used a single-stage stratified sample design. The sample allocation was nonproportional, with oversampling of small domains and population subgroups having low response rates. The total sample size was based on precision requirements for key reporting domains. The allocation was determined by an optimization algorithm that minimizes the cost of the survey while meeting the precision requirements.

Analytic weights were created in four steps to account for unequal selection probabilities and varying response rates among population subgroups. First, sample records were classified for weighting according to eligibility status (known or unknown eligibility) then the sampling weights (i.e., the inverse of the selection probabilities) were calculated. Second, the sampling weights were adjusted to account for sample members whose eligibility could not be determined. Third, the eligibility-adjusted weights were again adjusted to account for eligible sample members who did not return complete questionnaires. Fourth, the adjusted weights were poststratified to match population totals and to reduce bias unaccounted for by the previous weighting steps. Sampling strata were collapsed to create strata for variance estimation by means of Taylor series linearization.

Location, completion, and response rates were calculated for the sample and for population subgroups after the field closed and data were received. These rates were computed according to the RR3 recommendations of the American Association of Public Opinion Researchers (AAPOR, 2011). The location, completion, and response rates for the active component were 92%, 18%, and 17% respectively.

## Table of Contents

|                                                                    | <u>Page</u> |
|--------------------------------------------------------------------|-------------|
| Introduction.....                                                  | 1           |
| Sample Design and Selection.....                                   | 1           |
| Target Population.....                                             | 1           |
| Sampling Frame .....                                               | 2           |
| Sample Design .....                                                | 3           |
| Sample Allocation.....                                             | 4           |
| Experiments .....                                                  | 7           |
| Weighting.....                                                     | 10          |
| Case Dispositions .....                                            | 11          |
| Nonresponse Adjustments and Poststratification.....                | 13          |
| Variance Estimation.....                                           | 17          |
| Civilian Citizens Voting Age Population (CVAP) Weights .....       | 17          |
| Location, Completion, and Response Rates .....                     | 18          |
| Ineligibility Rate .....                                           | 19          |
| Estimated Ineligible Postal Non-Deliverable/Not Located Rate ..... | 20          |
| Estimated Ineligible Nonresponse .....                             | 20          |
| Adjusted Location Rate.....                                        | 20          |
| Adjusted Completion Rate .....                                     | 20          |
| Adjusted Response Rate.....                                        | 20          |
| References .....                                                   | 25          |

## List of Tables

|     |                                                                              |    |
|-----|------------------------------------------------------------------------------|----|
| 1.  | Variables for Stratification and Key Reporting Domains .....                 | 4  |
| 2.  | Sample Size by Stratification Variables: Active Duty Members.....            | 6  |
| 3.  | Sample Size by Stratification Variables: Activated Selected Reserves .....   | 7  |
| 4.  | Sample Size by Stratification Variables: All Other Selected Reservists ..... | 7  |
| 5.  | Break Down by Communication Flag .....                                       | 8  |
| 6.  | Break Down by Experiment Flag .....                                          | 9  |
| 7.  | Break Down by Experiment Strata .....                                        | 10 |
| 8.  | Case Dispositions for Weighting .....                                        | 11 |
| 9.  | Sample Case Disposition Counts .....                                         | 12 |
| 10. | Complete Eligible Respondents by Service and Location.....                   | 13 |
| 11. | Distribution of Weights and Adjustment Factors by Eligibility Status .....   | 14 |
| 12. | Sum of Weights by Eligibility Status.....                                    | 17 |
| 13. | CVAP Estimated Population by Gender and Age .....                            | 18 |

## Table of Contents (Continued)

|                                                                                | <u>Page</u> |
|--------------------------------------------------------------------------------|-------------|
| 14. Disposition Codes for CASRO Response Rates .....                           | 19          |
| 15. Comparison of the Final Sample Relative to the Drawn Sample .....          | 21          |
| 16. Eligible Sample Location Rates, Response Rates, and Completion Rates ..... | 22          |
| 17. Rates for Full Sample and Stratification Level .....                       | 22          |



# **2012 POST-ELECTION VOTING SURVEY OF THE ACTIVE DUTY MILITARY: STATISTICAL METHODOLOGY REPORT**

## **Introduction**

The Uniformed and Overseas Citizens Absentee Voting Act of 1986 (UOCAVA), 42 USC 1973ff, permits members of the Uniformed Services and Merchant Marine, and their eligible family members and all citizens residing outside the United States who are absent from the United States and its territories to vote in the general election for federal offices. These groups include:

- Members of the Uniformed Services including Army, Navy, Air Force, Marine Corps, Coast Guard,
- U.S. citizens employed by the Federal Government residing outside the U.S., and
- All other private U.S. citizens residing outside the U.S.

The Federal Voting Assistance Program (FVAP), under the guidance of USD (P&R), is charged with implementing the UOCAVA and evaluating the effectiveness of its programs. The FVAP Office asked DMDC to design, administer, and analyze post-election surveys on Uniformed Services voter participation, spouses of the active duty, voting assistance officers, and local election officials. Without such surveys, the Department will not be able to assess and improve voter access. In addition, such surveys fulfill the 1988 Executive Order 12642 that names the Secretary of Defense as the “Presidential designee” for administering the UOCAVA and requires surveys to evaluate the effectiveness of the program in presidential election years.

The objectives of the 2012 post-election surveys are: (1) to gauge participation in the electoral process by citizens covered by UOCAVA, (2) to assess the impact of the FVAP’s efforts to simplify and ease the process of voting absentee, (3) to evaluate other progress made to facilitate voting participation, and (4) to identify any remaining obstacles to voting by these citizens. Surveys were done on military members, active duty spouses, voting assistance personnel, and local election officials in the U.S.

This report focuses on the *2012 Post-Election Voting Survey of the Active Duty Military (2012 PEV5)*, which was designed to capture the attitudes and behaviors of active duty military members throughout the world. This report describes the sampling and weighting methodologies used in the *2012 PEV5*. Calculation of response rates is described in the final section.

## ***Sample Design and Selection***

### ***Target Population***

The target population for the active duty military members of the *2012 PEV5* was designed to represent individuals meeting all of the following criteria:

1. An active duty member of the Army, Navy, Marine Corps, Air Force, Coast Guard, and all Selected Reservists members;
2. At least 6 months of service by the beginning of the survey fielding period;
3. Up to and including paygrade O6;
4. U.S. citizen;
5. At least 18 years old by November 6, 2012;

Fielding of the 2012 PEV5 survey began November 7, 2012 and ended on January 16, 2013.

### ***Sampling Frame***

The sampling frame for the 2012 Post Election Voting Survey for Active Duty Military Members (2012 PEV5) consists of 2,216,291 members of which 1,391,347 are active duty members, 130,156 are activated Reservists (AGRs), and 694,788 are other Selected Reserves (e.g., TPU, IMA, etc.).

The active duty portion of the sampling frame was created from the June 2012 Active Duty Edit Master File (ADMF). To be included in this portion of the frame the member must be: a U.S citizen, 18 years old on November 6, 2012, and not a general or flag officer. In addition the member must be serving in the Army, Navy, Marine Corps, Air Force, or Coast Guard. Additional information for the active portion of the sampling frame was obtained from the June 2012 Active Duty Family Database and the June 2012 Contingency Tracking System (CTS).

The reserve portion of the sampling frame was created from the June 2012 Reserve Components Common Personnel System (RCCPDS). To be included in the reserve portion of the frame the member must be: a U.S. citizen, 18 years old on November 6, 2012, not a general or flag officer, and a Selected Reservist serving in either the Reserve or National Guard forces. In addition there are age restrictions that depend on the state where the member lives. Members in Mississippi must be 19 years old on November 6, 2012 and members living in New York, Nevada, or Puerto Rico must be 21 years old. Additional information for the reserve portion of the sampling frame was obtained from the June 2012 Reserve Family Database, the June 2012 CTS Reserve Deployment File and the June 2012 CTS Activation File.

Eligibility updates for the sampling frame were done using the July 2012 Defense Enrollment Eligibility Reporting System (DEERS) Point-in-Time Extract (PITE). Active duty sample members were identified as ineligible using the August 2012 DEERS PITE. Reserve sample members were identified as ineligible using the July 2012 RCCPDS. In addition, sample members were identified as ineligible by self or proxy report due to separation, retirement, or incarceration by the Survey Control System during the survey fielding period.

## **Sample Design**

The 2012 PEV5 sample used a single-stage stratified design. Six population characteristics defined the stratification dimensions: Population Type (active, AGR, other Reserves), Duty Location, Service/Component, Paygrade group, Age group, and Gender. These are the variables marked with an asterisk (\*) in Table 1. The frame was partitioned into 342 mutually exclusive strata. For active duty members including Coast Guard the frame was partitioned into 242 strata produced by cross-classification of the stratification variables. All active Coast Guard members stationed overseas were grouped into one stratum. The Activated Reserves component members frame was partitioned into 98 strata produced by cross-classification of the stratification variables. All other Selected Reservists were grouped into two strata; US and overseas.

Within each stratum, individuals were selected with equal probability and without replacement. Since the allocation of the sample was not proportional to the size of the strata, selection probabilities varied among strata (i.e., individuals were not selected with equal probability overall). Nonproportional allocation was used to achieve adequate sample sizes for small subpopulations of analytic interest (i.e., the survey reporting domains). These domains included subpopulations defined by the stratification characteristics, as well as other key reporting domains. Few key reporting domain variables are shown in Table 1.

**Table 1.**  
***Variables for Stratification and Key Reporting Domains***

| <b>Variable</b>              | <b>Categories</b>                                                                                          |
|------------------------------|------------------------------------------------------------------------------------------------------------|
| Active Duty Service Branch * | Army<br>Navy<br>Marine Corps<br>Air Force<br>Coast Guard                                                   |
| Population Type Flag *       | Active Duty Members<br>AGR/Activated Selected Reservists<br>All other Selected Reservists                  |
| Paygrade Group *             | E1-E5<br>E6-E9<br>W1-W5<br>O1-O3<br>O4-O6                                                                  |
| Gender *                     | Male<br>Female                                                                                             |
| Duty Location *              | U.S. & U.S. Territories<br>Overseas                                                                        |
| Age                          | 18 to 29 years old<br>30 to 39 years old<br>40 years and older                                             |
| Age*                         | 18 to 24 years old<br>25 to 29 years old<br>30 to 34 years old<br>35 to 44 years old<br>45 years and older |
| Paygrade Group               | Enlisted<br>Officer                                                                                        |

*Note.* \* denotes stratification variable.

### ***Sample Allocation***

The 2012 PEV5 total sample size consisted of 60,273 active duty members, 9,988 AGRs and 19,738 other Selected Reserves. These samples were selected from population sizes of 1,391,347 and 130,156 and 694,788 respectively. The Active Duty Military members sample was determined based on precision requirements for key reporting domains. The other Selected Reserves (Non-AGR) sample of 19,738 consisted of 19,540 individuals in the U.S. and U.S. Territories and 198 individuals overseas.

Given estimated variable survey costs and anticipated eligibility and response rates, an optimization algorithm determined the minimum-cost allocation that simultaneously satisfied the domain precision requirements. Estimated eligibility and response rates for the 2012 PEV5 sample were based on the 2010 *Post-Election Voting Survey of the Active Duty Military*.

The allocation was accomplished by means of the DMDC Sample Planning Tool (SPT), Version 2.1 (Dever & Mason, 2003). This application is based on the method originally developed by J. R. Chromy (1987) and described in Mason, Wheelless, George, Dever, Riemer,

and Elig (1995). The SPT defines domain variance equations in terms of unknown stratum sample sizes and user-specified precision constraints. A cost function is defined in terms of the unknown stratum sample sizes and the per-unit cost of data collection, editing, and processing. The variance equations are solved simultaneously, subject to the constraints imposed, for the sample size that minimizes the cost function. Eligibility rates modify the estimated prevalence rates used in the variance equations, thus affecting the allocation; response rates inflate the allocation, thus affecting the final sample size.

Precision constraints were imposed on the 33 domains of primary interest. Generally, the precision requirement was based on an estimated prevalence rate of 0.5 with a 95 percent confidence interval half-width no greater than 0.05. Constraints were manipulated to produce an allocation that achieved satisfactory precision for the domains of interest at an approximate sample size of 90,000.

Sample sizes by service component for the levels of the stratification dimensions for active duty members and activated Reserve component members are shown in Table 2 and Table 3 respectively. Sample size by location for the other Selected Reserve is shown in Table 4. The sample allocation and allocation solutions by reporting category are available upon request. Unknowns are grouped with the largest category of the variable. For example, if the paygrade for enlisted member is unknown it was grouped with E4 since E4 is the largest enlisted category.

**Table 2.**  
***Sample Size by Stratification Variables: Active Duty Members***

| <b>Stratification Variable</b> | <b>Total</b> | <b>Army</b> | <b>Navy</b> | <b>Marine Corps</b> | <b>Air Force</b> | <b>Coast Guard</b> |
|--------------------------------|--------------|-------------|-------------|---------------------|------------------|--------------------|
| <b>Total</b>                   | 60,273       | 24,749      | 12,773      | 8,744               | 12,562           | 1,445              |
| <b>Duty Location</b>           |              |             |             |                     |                  |                    |
| US & US territories            | 47,916       | 19,026      | 10,440      | 7,167               | 9,846            | 1,437              |
| Overseas                       | 12,357       | 5,723       | 2,333       | 1,577               | 2,716            | 8                  |
| <b>Paygrade Group</b>          |              |             |             |                     |                  |                    |
| E1-E5                          | 38,952       | 15,625      | 8,115       | 6,709               | 7,674            | 829                |
| E6-E9                          | 11,074       | 4,687       | 2,527       | 1,081               | 2,450            | 329                |
| W1-W5                          | 765          | 585         | 54          | 80                  | 0                | 46                 |
| O1-O3                          | 6,713        | 2,710       | 1,504       | 668                 | 1,657            | 174                |
| O4-O6                          | 2,769        | 1,142       | 573         | 206                 | 781              | 67                 |
| <b>Age</b>                     |              |             |             |                     |                  |                    |
| 18 - 24                        | 24,878       | 9,289       | 5,317       | 5,308               | 4,546            | 418                |
| 25 - 29                        | 15,099       | 6,310       | 3,130       | 1,832               | 3,437            | 390                |
| 30 - 34                        | 9,012        | 3,936       | 1,893       | 821                 | 2,074            | 288                |
| 35 - 44                        | 9,519        | 4,340       | 2,042       | 682                 | 2,177            | 278                |
| 45 +                           | 1,765        | 874         | 391         | 101                 | 328              | 71                 |
| <b>Gender</b>                  |              |             |             |                     |                  |                    |
| Male                           | 51,683       | 21,480      | 10,634      | 8,126               | 10,217           | 1,226              |
| Female                         | 8,590        | 3,269       | 2,139       | 618                 | 2,345            | 219                |

**Table 3.**  
***Sample Size by Stratification Variables: Activated Selected Reserves***

| <b>Stratification Variable</b> | <b>Total</b> | <b>Army</b> | <b>Navy</b> | <b>Marine Corps</b> | <b>Air Force</b> | <b>Coast Guard</b> |
|--------------------------------|--------------|-------------|-------------|---------------------|------------------|--------------------|
| <b>Total</b>                   | 9,988        | 6,772       | 1,145       | 420                 | 1,603            | 48                 |
| <b>Duty Location</b>           |              |             |             |                     |                  |                    |
| US & US territories            | 7,245        | 4,420       | 1,119       | 363                 | 1,306            | 37                 |
| Overseas                       | 2,743        | 2,352       | 26          | 57                  | 297              | 11                 |
| <b>Paygrade Group</b>          |              |             |             |                     |                  |                    |
| E1-E5                          | 4,213        | 2,883       | 583         | 257                 | 463              | 27                 |
| E6-E9                          | 4,022        | 2,642       | 416         | 103                 | 845              | 16                 |
| W1-W5                          | 245          | 235         | 2           | 8                   | 0                | 0                  |
| O1-O3                          | 654          | 519         | 44          | 10                  | 78               | 3                  |
| O4-O6                          | 854          | 493         | 100         | 42                  | 217              | 2                  |
| <b>Age</b>                     |              |             |             |                     |                  |                    |
| 18 - 24                        | 1,402        | 1,028       | 165         | 99                  | 102              | 8                  |
| 25 - 29                        | 1,804        | 1,214       | 254         | 121                 | 203              | 12                 |
| 30 - 34                        | 1,800        | 1,230       | 184         | 82                  | 293              | 11                 |
| 35 - 44                        | 3,011        | 1,952       | 385         | 94                  | 568              | 12                 |
| 45 +                           | 1,971        | 1,348       | 157         | 24                  | 437              | 5                  |
| <b>Gender</b>                  |              |             |             |                     |                  |                    |
| Male                           | 8,300        | 5,654       | 928         | 393                 | 1,281            | 44                 |
| Female                         | 1,688        | 1,118       | 217         | 27                  | 322              | 4                  |

**Table 4.**  
***Sample Size by Stratification Variables: All Other Selected Reservists***

| <b>Stratification Variable</b> | <b>Total</b> | <b>US &amp; US territories</b> | <b>Overseas</b> |
|--------------------------------|--------------|--------------------------------|-----------------|
| Total                          | 19,738       | 19,540                         | 198             |

### ***Experiments***

In addition to the reminder calls, postal experiments were conducted on this survey. Respondents could receive one of six potential communication strategies, and they are

represented by communication flag variable (COMMFLAG). The purpose of the experiment was to determine whether certain contact methods were more effective in increasing response rates within specific sub-populations. The table below shows the breakdown of the contact methods. SOFS refers to HRSAP's standard method of contact which includes one postal notification, two reminder letters, one announcement e-mail and six e-mail reminders. All groups (1 to 6) received email announcements and reminders. Group 2 received postal notification and emails; group 3 received postal notification, phone reminders, and emails; group 4 received postal notification to the UIC address, phone reminders, and emails; group 5 received phone reminders and emails, and group 6 received email reminders only.

**Table 5.**  
***Break Down by Communication Flag***

| <b>COMMFLAG</b>           | <b>Frequency</b> | <b>Percent</b> |
|---------------------------|------------------|----------------|
| 1 = SOFS                  | 44,886           | 49.9           |
| 2 = 1 Postal              | 4,999            | 5.6            |
| 3 = 1 Postal, Phone       | 5,581            | 6.2            |
| 4 = 1 Postal (UIC), Phone | 4,403            | 4.9            |
| 5 = No Postal, phone      | 10,392           | 11.5           |
| 6 = No Postal             | 19,738           | 21.9           |

The variable EXPFLAG contains the same information as COMMFLAG, but also splits out the 'SOFS' treatment by paygrade/Service so that the appropriate 'control' groups for each experiment are isolated. For example, roughly 5,000 receive the postal experiment and another 5,000 received the standard SOFS style of notification.



**Table 6.**  
***Break Down by Experiment Flag***

| <b>EXPFLAG</b>                  | <b>Frequency</b> | <b>Percent</b> |
|---------------------------------|------------------|----------------|
| 1=1 Postal-Experiment           | 4,999            | 5.6            |
| 2=1 Postal-SOFS                 | 5,046            | 5.6            |
| 3=1 Postal, Phone-Experiment    | 5,581            | 6.2            |
| 4=1 Postal, Phone- SOFS         | 5,614            | 6.2            |
| 5=1 Postal UIC Phone-Experiment | 4,403            | 4.9            |
| 6=1 Postal UIC Phone-SOFS       | 4,416            | 4.9            |
| 7=No Postal Phone-Experiment    | 10,392           | 11.5           |
| 8=No Postal Phone-SOFS          | 10,429           | 11.6           |
| 9=No Postal-Other Reserves      | 19,738           | 21.9           |
| 10=SOFS (No Experiment)         | 9,393            | 10.4           |
| 11=Reserves (No Experiment)     | 9,988            | 11.1           |

Finally, STRAT\_EXP is on the file, which contains a separate value for each unique paygrade/Service combination that was randomly assigned to each experimental condition. Table 7 shows the experiment by service and paygrade grouping.

**Table 7.**  
***Break Down by Experiment Strata***

| Service                | Paygrade | Treatment 1 | Treatment 2      |
|------------------------|----------|-------------|------------------|
| Army                   | E1-E4    | SOFS        | Phone, No Postal |
| Army                   | E5-E6    | SOFS        | 1 Postal, Phone  |
| Army                   | E7-E9    | SOFS        | 1 Postal         |
| Army                   | O1-O3    | SOFS        | ---              |
| Army                   | O4-O6    | SOFS        | ---              |
| Army                   | W1-W5    | SOFS        | 1 Postal         |
| Navy                   | E1-E3    | SOFS        | Phone, 1 Postal* |
| Navy                   | E4       | SOFS        | Phone, No Postal |
| Navy                   | E5-E6    | SOFS        | 1 Postal, Phone  |
| Navy                   | E7-E9    | SOFS        | 1 Postal         |
| Navy                   | O1-O3    | SOFS        | 1 Postal         |
| Navy                   | O4-O6    | SOFS        | 1 Postal         |
| Navy                   | W1-W5    | SOFS        | 1 Postal         |
| Marine Corps           | E1-E4    | SOFS        | Phone, 1 Postal* |
| Marine Corps           | E5-E6    | SOFS        | Phone, No Postal |
| Marine Corps           | E7-E9    | SOFS        | 1 Postal         |
| Marine Corps           | O1-O3    | SOFS        | 1 Postal, Phone  |
| Marine Corps           | O4-O6    | SOFS        | 1 Postal         |
| Marine Corps           | W1-W5    | SOFS        | 1 Postal         |
| Air Force              | E1-E4    | SOFS        | Phone, No Postal |
| Air Force              | E5-E6    | SOFS        | ---              |
| Air Force              | E7-E9    | SOFS        | 1 Postal         |
| Air Force              | O1-O3    | SOFS        | 1 Postal         |
| Air Force              | O4-O6    | SOFS        | 1 Postal         |
| Coast Guard            | All      | SOFS        | ---              |
| Reserve (AGR CTS File) | All      | SOFS        | ---              |
| Reserve (Other)        | All      | No Postal   | ---              |

### ***Weighting***

Analytical weights for the 2012 PEV5 were created to account for unequal probabilities of selection and varying response rates among population subgroups. Sampling weights were computed as the inverse of the selection probabilities. After determining case dispositions, the base weights were adjusted for eligibility which was adjusted for completion to primarily account for nonresponse. The adjusted weights were poststratified to match population totals and to reduce bias unaccounted for by the previous weighting steps.

## Case Dispositions

Case dispositions were assigned for weighting based on eligibility and completion of the survey. Execution of the weighting process and computation of response rates depend on this classification.

Final case dispositions for weighting were determined using information from personnel records, field operations (the Survey Control System or SCS), and returned surveys. No single source of information is both complete and correct; inconsistencies among sources were resolved according to the order of precedence shown in Table 8.

**Table 8.**  
**Case Dispositions for Weighting**

| Case Disposition (Samp_DC)                 | Information Source                                              | Conditions                                                                                                                                                                                                                      |
|--------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 Record ineligible                        | Personnel record                                                | Sample ineligible—deceased or no address available in DEERS.                                                                                                                                                                    |
| 2 Ineligible by self- or proxy-report      | Survey Control System (SCS)                                     | “Retired,” “No longer employed by DoD,” or “Deceased.”                                                                                                                                                                          |
| 3 Ineligible by survey self-report         | Survey questionnaire                                            | Active duty member retired or separated from military; Reservist no longer member of a Reserve Component. Either Active duty or Reserve respondent is not a US citizen or less than 18 years old.                               |
| 4 Eligible, complete response              | Item response rate                                              | Item response is at least 50% for respondents that were registered voters. All respondents self-identified as “not registered” were eligible and complete for the survey.                                                       |
| 5 Eligible, incomplete response            | Item response rate                                              | Survey isn’t blank but item response is less than 50%.                                                                                                                                                                          |
| 6 Unknown eligibility, complete response   | Personnel record, first survey question, item response rate     | Incomplete personnel record and first survey item is missing and item response is at least 50%.                                                                                                                                 |
| 7 Unknown eligibility, incomplete response | Personnel record, first survey question, and item response rate | Incomplete personnel record AND first survey question is missing AND return is not blank AND item response is less than 50%.                                                                                                    |
| 8 Active refusal                           | SCS                                                             | Reason refused is any.                                                                                                                                                                                                          |
|                                            |                                                                 | Reason ineligible is “other.”                                                                                                                                                                                                   |
|                                            |                                                                 | Reason survey is blank is “refused-too long,” “refused-inappropriate/intrusive,” “refused-other,” “ineligible-other,” “unreachable at this address,” “refused by current resident,” “concerned about security/confidentiality.” |
| 9 Blank return                             | SCS                                                             | No reason given.                                                                                                                                                                                                                |
| 10 PND                                     | SCS                                                             | Postal non-deliverable or original non-locatable.                                                                                                                                                                               |
| 11 Nonrespondent                           | Remainder                                                       | Remainder                                                                                                                                                                                                                       |

This order is critical to resolving case dispositions. For example, suppose a sample person refused the survey with the reason that it was too long; in the absence of any other

information the disposition would be “eligible nonrespondent.” If a proxy report also indicated that this person had been hospitalized and was unable to complete the survey, the disposition would be “ineligible.” Final case dispositions for the 2012 PEV5 are shown in Table 9. The total number of eligible complete responses by service and location is given in Table 10.

**Table 9.**  
***Sample Case Disposition Counts***

| Case Disposition (Samp_DC)                  | Active Duty Members | Activated Selected Reservists | All Other Selected Reservists |
|---------------------------------------------|---------------------|-------------------------------|-------------------------------|
| 1 Record ineligible                         | 796                 | 20                            | 96                            |
| <b>Known Eligibility</b>                    |                     |                               |                               |
| 2 Ineligible by self- or proxy-report       | 177                 | 6                             | 28                            |
| 3 Ineligible by survey self-report          | 52                  | 372                           | 1,381                         |
| 4 Eligible – complete response              | 8,305               | 2,002                         | 304                           |
| 5 Eligible – incomplete response            | 542                 | 96                            | 45                            |
| <b>Unknown Eligibility</b>                  |                     |                               |                               |
| 6 Unknown eligibility, complete response    | 0                   | 0                             | 0                             |
| 7 Unknown eligibility, incomplete response  | 0                   | 0                             | 0                             |
| 8 Active refusal – refused, deployed, other | 1,716               | 109                           | 117                           |
| 9 Blank return                              | 449                 | 108                           | 255                           |
| 10 PND – postal non-deliverable             | 5,253               | 293                           | 1,274                         |
| 11 Non-respondents                          | 42,983              | 6,982                         | 16,238                        |
| Total                                       | 60,273              | 9,988                         | 19,738                        |

**Table 10.**  
***Complete Eligible Respondents by Service and Location***

| Service                  | U.S./U.S.<br>Territories | Overseas | Total |
|--------------------------|--------------------------|----------|-------|
| <b>Active Duty</b>       |                          |          |       |
| Army                     | 2,112                    | 480      | 2,592 |
| Navy                     | 1,382                    | 270      | 1,652 |
| Marine Corps             | 767                      | 177      | 944   |
| Air Force                | 2,167                    | 528      | 2,695 |
| Coast Guard              | 419                      | 3        | 422   |
| Total                    | 6,847                    | 1,458    | 8,305 |
| <b>Reserve Component</b> |                          |          |       |
| Army                     | 1,324                    | 150      | 1,474 |
| Navy                     | 171                      | 6        | 177   |
| Marine Corps             | 61                       | 1        | 62    |
| Air Force                | 552                      | 34       | 586   |
| Coast Guard              | 6                        | 1        | 7     |
| Total                    | 2,114                    | 192      | 2,306 |

### ***Nonresponse Adjustments and Poststratification***

After case dispositions were resolved, the sampling weights were adjusted for nonresponse. First, the sampling weights for cases of known eligibility (Samp\_DC = 2, 3, 4, or 5) were adjusted to account for cases of unknown eligibility (Samp\_DC = 8, 9, 10, or 11). Next, the eligibility-adjusted weights for eligible respondents (Samp\_DC = 4) were adjusted to account for eligible sample members who had not returned a completed survey (Samp\_DC = 5). Record ineligible (Samp\_DC = 1; sample members determined to be ineligible by the DEERS PITE and matched before survey administration) were excluded from nonresponse adjustments.

Weighting adjustment factors for eligibility and completion were computed as the inverse of model-predicted probabilities. First, a logistic regression model was used to predict the probability of eligibility for the survey (known eligibility versus unknown eligibility). A second logistic regression model was used to predict the probability of response among eligible sample members (complete response versus incomplete). Chi-squared Automatic Interaction Detector (CHAID) was used to determine the best predictors for each logistic model. Both logistic models were weighted. The first and the second models were weighted by the sampling weight.

Finally, the weights were poststratified to match population totals and to reduce bias unaccounted for by the previous weighting adjustments. For active duty members, poststratification cells were defined by the cross-classification of service branch, paygrade, age, region, and gender. Poststratification cells for All Selected Reservists were defined by the cross-classification of paygrade, age, and region. Within each active duty members poststratification cell, the nonresponse-adjusted weights for eligible respondents (Samp\_DC = 2, 3, 4) were

adjusted to match population counts. Within each selected reservists poststratification cell, the nonresponse-adjusted weights for eligible respondents (Samp\_DC=4) were adjusted to match population counts. Final weights for record ineligible (Samp\_DC = 1) and self-reported ineligible (Samp\_DC = 2, 3) were set to zero. Distributions of the sampling weights, intermediate weights, final weights, and adjustment factors by eligibility status are shown in Table 11. The sum of weights by eligibility status is presented in Table 12.

**Table 11.**  
***Distribution of Weights and Adjustment Factors by Eligibility Status***

| Eligibility Status         | Statistic | Sampling Weight | Eligibility Status Adjusted Weight | Complete Eligible Response Adjusted Weight | Final Weight With Nonresponse and Poststratification Factors | Eligibility Status Factor | Complete Eligible Response Factor | Post-stratification Factor |
|----------------------------|-----------|-----------------|------------------------------------|--------------------------------------------|--------------------------------------------------------------|---------------------------|-----------------------------------|----------------------------|
| <b>Active Duty Members</b> |           |                 |                                    |                                            |                                                              |                           |                                   |                            |
| Eligible Respondents       | N         | 8,305           | 8,305                              | 8,305                                      | 8,305                                                        | 8,305                     | 8,305                             | 8,305                      |
|                            | MIN       | 13.8            | 41.4                               | 43.8                                       | 31.9                                                         | 1.5                       | 1.0                               | 0.4                        |
|                            | MAX       | 40.2            | 1,578.3                            | 1,844.6                                    | 2,054.8                                                      | 70.0                      | 1.2                               | 3.0                        |
|                            | MEAN      | 25.6            | 145.4                              | 157.4                                      | 158.8                                                        | 6.2                       | 1.1                               | 1.0                        |
|                            | STD       | 5.0             | 136.0                              | 154.5                                      | 162.9                                                        | 7.0                       | 0.0                               | 0.2                        |
|                            | CV        | 0.2             | 0.9                                | 1.0                                        | 1.0                                                          | 1.1                       | 0.0                               | 0.2                        |
| Self/Proxy Ineligibles     | N         | 229             | 229                                | 229                                        | 229                                                          | 229                       | 0                                 | 229                        |
|                            | MIN       | 18.9            | 52.5                               | 52.5                                       | 47.2                                                         | 1.8                       |                                   | 0.5                        |
|                            | MAX       | 37.0            | 1,375.7                            | 1,375.7                                    | 1,758.2                                                      | 70.0                      |                                   | 1.9                        |
|                            | MEAN      | 23.2            | 302.6                              | 302.6                                      | 316.6                                                        | 14.4                      |                                   | 1.0                        |
|                            | STD       | 4.0             | 246.1                              | 246.1                                      | 273.4                                                        | 13.2                      |                                   | 0.2                        |
|                            | CV        | 0.2             | 0.8                                | 0.8                                        | 0.9                                                          | 0.9                       |                                   | 0.2                        |
| Non-Respondents            | N         | 50,943          | 50,943                             | 50,943                                     | 50,943                                                       | 50,943                    | 542                               | 0                          |
|                            | MIN       | 13.8            | 0.0                                | 0.0                                        | 0.0                                                          | 0.0                       | 0.0                               |                            |
|                            | MAX       | 40.2            | 1,578.3                            | 0.0                                        | 0.0                                                          | 70.0                      | 0.0                               |                            |
|                            | MEAN      | 22.7            | 1.9                                | 0.0                                        | 0.0                                                          | 0.1                       | 0.0                               |                            |
|                            | STD       | 3.8             | 25.5                               | 0.0                                        | 0.0                                                          | 1.2                       | 0.0                               |                            |
|                            | CV        | 0.2             | 13.5                               |                                            |                                                              | 14.4                      |                                   |                            |
| Record Ineligibles         | N         | 796             | 796                                | 796                                        | 796                                                          | 0                         | 0                                 | 0                          |
|                            | MIN       | 16.9            | 16.9                               | 16.9                                       | 0.0                                                          |                           |                                   |                            |
|                            | MAX       | 38.4            | 38.4                               | 38.4                                       | 0.0                                                          |                           |                                   |                            |
|                            | MEAN      | 22.7            | 22.7                               | 22.7                                       | 0.0                                                          |                           |                                   |                            |
|                            | STD       | 4.1             | 4.1                                | 4.1                                        | 0.0                                                          |                           |                                   |                            |
|                            | CV        | 0.2             | 0.2                                | 0.2                                        |                                                              |                           |                                   |                            |

**Table 11. (continued)**

| Eligibility Status                         | Statistic | Sampling Weight | Eligibility Status Adjusted Weight | Complete Eligible Response Adjusted Weight | Final Weight With Nonresponse and Poststratification Factors | Eligibility Status Factor | Complete Eligible Response Factor | Post-stratification Factor |
|--------------------------------------------|-----------|-----------------|------------------------------------|--------------------------------------------|--------------------------------------------------------------|---------------------------|-----------------------------------|----------------------------|
| <b>AGR / Activated Selected Reservists</b> |           |                 |                                    |                                            |                                                              |                           |                                   |                            |
| Eligible Respondents                       | N         | 2,002           | 2,002                              | 2,002                                      | 2,002                                                        | 2,002                     | 2,002                             | 2,002                      |
|                                            | MIN       | 9.0             | 24.0                               | 24.8                                       | 29.1                                                         | 2.0                       | 1.0                               | 1.0                        |
|                                            | MAX       | 18.2            | 374.9                              | 403.5                                      | 969.1                                                        | 33.5                      | 1.2                               | 3.6                        |
|                                            | MEAN      | 14.9            | 49.0                               | 51.8                                       | 65.0                                                         | 3.5                       | 1.0                               | 1.2                        |
|                                            | STD       | 2.4             | 28.1                               | 31.0                                       | 68.8                                                         | 2.9                       | 0.0                               | 0.3                        |
|                                            | CV        | 0.2             | 0.6                                | 0.6                                        | 1.1                                                          | 0.8                       | 0.0                               | 0.3                        |
| Self/Proxy Ineligibles                     | N         | 378             | 378                                | 378                                        | 378                                                          | 378                       | 0                                 | 0                          |
|                                            | MIN       | 8.6             | 26.6                               | 26.6                                       | 0.0                                                          | 2.0                       |                                   |                            |
|                                            | MAX       | 18.0            | 374.9                              | 374.9                                      | 0.0                                                          | 33.5                      |                                   |                            |
|                                            | MEAN      | 12.8            | 68.6                               | 68.6                                       | 0.0                                                          | 6.1                       |                                   |                            |
|                                            | STD       | 2.6             | 61.2                               | 61.2                                       | 0.0                                                          | 6.5                       |                                   |                            |
|                                            | CV        | 0.2             | 0.9                                | 0.9                                        |                                                              | 1.1                       |                                   |                            |
| Non-Respondents                            | N         | 7,588           | 7,588                              | 7,588                                      | 7,588                                                        | 7,588                     | 96                                | 0                          |
|                                            | MIN       | 8.6             | 0.0                                | 0.0                                        | 0.0                                                          | 0.0                       | 0.0                               |                            |
|                                            | MAX       | 18.2            | 283.0                              | 0.0                                        | 0.0                                                          | 25.3                      | 0.0                               |                            |
|                                            | MEAN      | 12.6            | 0.8                                | 0.0                                        | 0.0                                                          | 0.1                       | 0.0                               |                            |
|                                            | STD       | 2.8             | 8.2                                | 0.0                                        | 0.0                                                          | 0.7                       | 0.0                               |                            |
|                                            | CV        | 0.2             | 10.6                               |                                            |                                                              | 11.6                      |                                   |                            |
| Record ineligible                          | N         | 20              | 20                                 | 20                                         | 20                                                           | 0                         | 0                                 | 0                          |
|                                            | MIN       | 9.0             | 9.0                                | 9.0                                        | 0.0                                                          |                           |                                   |                            |
|                                            | MAX       | 17.8            | 17.8                               | 17.8                                       | 0.0                                                          |                           |                                   |                            |
|                                            | MEAN      | 12.4            | 12.4                               | 12.4                                       | 0.0                                                          |                           |                                   |                            |
|                                            | STD       | 2.8             | 2.8                                | 2.8                                        | 0.0                                                          |                           |                                   |                            |
|                                            | CV        | 0.2             | 0.2                                | 0.2                                        |                                                              |                           |                                   |                            |

**Table 11. (continued)**

| Eligibility Status                   | Statistic | Sampling Weight | Eligibility Status Adjusted Weight | Complete Eligible Response Adjusted Weight | Final Weight With Nonresponse and Poststratification Factors | Eligibility Status Factor | Complete Eligible Response Factor | Post-stratification Factor |
|--------------------------------------|-----------|-----------------|------------------------------------|--------------------------------------------|--------------------------------------------------------------|---------------------------|-----------------------------------|----------------------------|
| <b>All other Selected Reservists</b> |           |                 |                                    |                                            |                                                              |                           |                                   |                            |
| Eligible Respondents                 | N         | 304             | 304                                | 304                                        | 304                                                          | 304                       | 304                               | 304                        |
|                                      | MIN       | 29.1            | 103.3                              | 110.8                                      | 69.0                                                         | 3.5                       | 1.0                               | 0.6                        |
|                                      | MAX       | 35.3            | 1525.7                             | 1761.8                                     | 1096.4                                                       | 43.3                      | 1.2                               | 0.6                        |
|                                      | MEAN      | 35.0            | 418.3                              | 454.2                                      | 282.7                                                        | 11.9                      | 1.1                               | 0.6                        |
|                                      | STD       | 1.2             | 410.2                              | 459.0                                      | 285.6                                                        | 11.6                      | 0.0                               | 0.0                        |
|                                      | CV        | 0.0             | 1.0                                | 1.0                                        | 1.0                                                          | 1.0                       | 0.0                               | 0.0                        |
| Self/Proxy Ineligibles               | N         | 1,409           | 1,409                              | 1,409                                      | 1,409                                                        | 1,409                     | 0                                 | 0                          |
|                                      | MIN       | 29.1            | 125.0                              | 125.0                                      | 0.0                                                          | 3.5                       |                                   |                            |
|                                      | MAX       | 35.3            | 1525.7                             | 1525.7                                     | 0.0                                                          | 43.3                      |                                   |                            |
|                                      | MEAN      | 35.2            | 382.2                              | 382.2                                      | 0.0                                                          | 10.9                      |                                   |                            |
|                                      | STD       | 0.7             | 393.2                              | 393.2                                      | 0.0                                                          | 11.1                      |                                   |                            |
|                                      | CV        | 0.0             | 1.0                                | 1.0                                        |                                                              | 1.0                       |                                   |                            |
| Non-Respondents                      | N         | 17,929          | 17,929                             | 17,929                                     | 17,929                                                       | 17,929                    | 45                                | 0                          |
|                                      | MIN       | 29.1            | 0.0                                | 0.0                                        | 0.0                                                          | 0.0                       | 0.0                               |                            |
|                                      | MAX       | 35.3            | 1525.7                             | 0.0                                        | 0.0                                                          | 43.3                      | 0.0                               |                            |
|                                      | MEAN      | 35.2            | 1.4                                | 0.0                                        | 0.0                                                          | 0.0                       | 0.0                               |                            |
|                                      | STD       | 0.6             | 36.8                               | 0.0                                        | 0.0                                                          | 1.0                       | 0.0                               |                            |
|                                      | CV        | 0.0             | 25.7                               |                                            |                                                              | 25.7                      |                                   |                            |
| Record ineligible                    | N         | 96              | 96                                 | 96                                         | 96                                                           | 0                         | 0                                 |                            |
|                                      | MIN       | 35.3            | 35.3                               | 35.3                                       | 0.0                                                          |                           |                                   |                            |
|                                      | MAX       | 35.3            | 35.3                               | 35.3                                       | 0.0                                                          |                           |                                   |                            |
|                                      | MEAN      | 35.3            | 35.3                               | 35.3                                       | 0.0                                                          |                           |                                   |                            |
|                                      | STD       | 0.0             | 0.0                                | 0.0                                        | 0.0                                                          |                           |                                   |                            |
|                                      | CV        | 0.0             | 0.0                                | 0.0                                        |                                                              |                           |                                   |                            |



**Table 12.**  
***Sum of Weights by Eligibility Status***

| <b>Eligibility Category</b>                | <b>Sum of Sampling weights</b> | <b>Sum of Eligibility Status Adjusted Weights</b> | <b>Sum of Complete Eligible Response Adjusted Weights</b> | <b>Sum of Final Weights With Nonresponse and Poststratification Adjustments</b> |
|--------------------------------------------|--------------------------------|---------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Active Duty Members</b>                 |                                |                                                   |                                                           |                                                                                 |
| Eligible Respondents                       | 212,322                        | 1,207,498                                         | 1,307,418                                                 | 1,318,850                                                                       |
| Self/Proxy Report Ineligible               | 5,306                          | 69,296                                            | 69,296                                                    | 72,497                                                                          |
| Nonrespondents                             | 1,155,643                      | 96,474                                            | 0                                                         | 0                                                                               |
| Record Ineligible                          | 18,076                         | 18,076                                            | 18,076                                                    | 0                                                                               |
| <b>Total</b>                               | <b>1,391,347</b>               | <b>1,391,344</b>                                  | <b>1,394,790</b>                                          | <b>1,391,347</b>                                                                |
| <b>AGR / Activated Selected Reservists</b> |                                |                                                   |                                                           |                                                                                 |
| Eligible Respondents                       | 29,775                         | 98,152                                            | 103,652                                                   | 130,156                                                                         |
| Self/Proxy Report Ineligible               | 4,848                          | 25,922                                            | 25,922                                                    | 0                                                                               |
| Nonrespondents                             | 95,284                         | 5,834                                             | 0                                                         | 0                                                                               |
| Record Ineligible                          | 249                            | 249                                               | 249                                                       | 0                                                                               |
| <b>Total</b>                               | <b>130,156</b>                 | <b>130,156</b>                                    | <b>129,823</b>                                            | <b>130,156</b>                                                                  |
| <b>All other Selected Reservists</b>       |                                |                                                   |                                                           |                                                                                 |
| Eligible Respondents                       | 10,652                         | 127,149                                           | 138,080                                                   | 85,932                                                                          |
| Self/Proxy Report Ineligible               | 49,561                         | 538,562                                           | 538,562                                                   | 0                                                                               |
| Nonrespondents                             | 631,189                        | 25,691                                            | 0                                                         | 0                                                                               |
| Record Ineligible                          | 3,385                          | 3,385                                             | 3,385                                                     | 0                                                                               |
| <b>Total</b>                               | <b>694,788</b>                 | <b>694,788</b>                                    | <b>680,028</b>                                            | <b>85,932</b>                                                                   |

Note: that the weighted activated reservists that responded were forced to 216,088. The first element representing the pre-identified AGR/Activated Reservists is post stratified to 130,156, and the second element representing Reservists who were activated after sampling was poststratified to 85,932 resulting in total activated Reservists of 216,088. This number was provided to HRSAP from DMDC West.

### ***Variance Estimation***

Analysis of the 2012 PEV5 data requires a variance estimation procedure that accounts for the complex sample design. The final step of the weighting process was to define strata for variance estimation by Taylor series linearization. The 2012 PEV5 variance estimation strata correspond closely to the design strata; however, it was necessary to collapse some sampling strata containing fewer than 25 cases with nonzero final weights into similar strata. A total of 135 variance estimation strata (104 active and 31 Reserve) were defined for the 2012 PEV5.

### ***Civilian Citizens Voting Age Population (CVAP) Weights***

Critics have observed that the U.S. Military votes at lower rates than the civilian population. Critics have argued this is due to problems with absentee voting, whereas FVAP has recognized that although there are challenges with absentee voting, most of the differences between military and civilian voting rates can be attributed to differences between the demographics of the two groups, primarily the youth of the military.

In 2008, FVAP reported that 45 percent of U.S. civilians are 45 or older, whereas in the military the figure is only 5.2 percent. In 2010, 16 percent of 18-24 year olds in the military voted compared with 56 percent aged 45 or older. Clearly, voting rates in the military and civilian populations cannot be fairly compared without adjustments. In 2008, FVAP was interested in answering the question, “What would the voting rate be in the military if they had the same demographic composition as civilians?” To help answer this question, DMDC weighted the estimates from the PEV5 survey making the weighted proportions of personnel in various subgroups (e.g., female, 18-24 years old) equal to the civilian population distributions rather than the military distribution from which the sample was selected. We did this within 10 weighting cells (5 age groups by gender: 18-24, 25-29, 30-34, 35-44, and 45 plus). This alternate weighting greatly increases the influence of females and older military on estimated voting rates, and therefore estimated voting rates are higher using these weights (as hypothesized). Table 13 shows the numbers used for 2012 CVAP post-stratification.

**Table 13.**  
***CVAP Estimated Population by Gender and Age***

| <b>Age 2012</b> | <b>Total Citizens</b> | <b>Male</b>        | <b>Female</b>      |
|-----------------|-----------------------|--------------------|--------------------|
| 18 TO 24        | 27,534,983            | 13,712,120         | 13,822,862         |
| 25 TO 29        | 18,067,638            | 8,941,448          | 9,126,190          |
| 30 TO 34        | 17,405,858            | 8,483,897          | 8,921,963          |
| 35 TO 44        | 34,264,835            | 16,591,361         | 17,673,476         |
| 45 +            | 117,807,816           | 55,292,876         | 62,514,946         |
| <b>Total</b>    | <b>215,081,130</b>    | <b>103,021,702</b> | <b>112,059,437</b> |

### ***Location, Completion, and Response Rates***

Location, completion, and response rates were calculated in accordance with guidelines established by the Council of American Survey Research Organizations (CASRO). The procedure is based on recommendations for Sample Type II response rates (CASRO, 1982). This definition corresponds to The American Association for Public Opinion Research (AAPOR) RR3 (AAPOR, 2011), which estimates the proportion of eligibles among cases of unknown eligibility.

Location, completion, and response rates were computed for the *2012 PEV5* as follows:

The location rate (LR) is defined as

$$LR = \frac{\text{adjusted located sample}}{\text{adjusted eligible sample}} = \frac{N_L}{N_E}.$$

The completion rate (CR) is defined as

$$CR = \frac{\text{usable responses}}{\text{adjusted located sample}} = \frac{N_R}{N_L}.$$

The response rate (RR) is defined as

$$RR = \frac{\text{usable responses}}{\text{adjusted eligible sample}} = \frac{N_R}{N_E}.$$

where;

- $N_L$  = Adjusted located sample
- $N_E$  = Adjusted eligible sample
- $N_R$  = Usable responses.

To identify the cases that contribute to the components of LR, CR, and RR, the disposition codes were grouped as shown in Table 14. Record ineligible were excluded from calculation of the eligibility rate.

**Table 14.**  
***Disposition Codes for CASRO Response Rates***

| Response Category        | SAMP_DC Values     |
|--------------------------|--------------------|
| Eligible Sample          | 4, 5, 8, 9, 10, 11 |
| Located Sample           | 4, 5, 8, 9, 11     |
| Usable Response          | 4                  |
| Not Returned             | 11                 |
| Eligibility Determined   | 2, 3, 4, 5, 8, 9   |
| Self-Reported Ineligible | 2, 3               |

### ***Ineligibility Rate***

The ineligibility rate (IR) is defined as

$$IR = \frac{\text{self-reported ineligible}}{\text{eligibility determined}}.$$

### ***Estimated Ineligible Postal Non-Deliverable/Not Located Rate***

The estimated ineligible postal non-deliverable not located rate (IPNDR) is defined as

$$IPNDR = \frac{\text{Eligible Sample} - \text{Located Sample}}{\text{Eligible Sample}} * IR.$$

### ***Estimated Ineligible Nonresponse***

The estimated ineligible nonresponse (EINR) is defined as

$$EINR = \frac{\text{Not returned}}{\text{Eligible Sample}} * IR.$$

### ***Adjusted Location Rate***

The adjusted location rate (ALR) is defined as

$$ALR = (\text{Located Sample} - EINR) / (\text{Eligible Sample} - IPNDR - EINR).$$

### ***Adjusted Completion Rate***

The adjusted completion rate (ACR) is defined as

$$ACR = (\text{Usable Response}) / (\text{Located Sample} - EINR).$$

### ***Adjusted Response Rate***

The adjusted response rate (ARR) is defined as

$$ARR = (\text{Usable Response}) / (\text{Eligible Sample} - IPNDR - EINR).$$

Unweighted and weighted sample counts used to compute the overall response rates are shown in Table 15; weighted rates were computed using the sampling weights. The final response rate is the product of the location rate and the completion rate. Both weighted and unweighted location, completion, and response rates for the 2012 PEV5 survey are shown in Table 16. The final sample counts, usable response counts, sums of weights, weighted location, weighted completion, and weighted response rates are shown in Table 17.

**Table 15.**  
**Comparison of the Final Sample Relative to the Drawn Sample**

| Case Disposition Categories             | Active Duty   |       |                    |       | Activated Reservists |       |                   |       | All Other Selected Reservists |       |                    |       |
|-----------------------------------------|---------------|-------|--------------------|-------|----------------------|-------|-------------------|-------|-------------------------------|-------|--------------------|-------|
|                                         | Sample Counts |       | Weighted Estimates |       | Sample Counts        |       | Weighted Estimate |       | Sample Counts                 |       | Weighted Estimates |       |
|                                         | n             | %     | n                  | %     | n                    | %     | n                 | %     | n                             | %     | n                  | %     |
| Drawn sample and population             | 60,273        |       | 1,391,347          |       | 9,988                |       | 130,156           |       | 19,738                        |       | 694,788            |       |
| Total: Ineligible                       | -796          | 1.3%  | -18,076            | 1.3%  | -20                  | 0.2%  | -249              | 0.2%  | -96                           | 0.5%  | -3,385             | 0.5%  |
| Ineligible on master files              | -229          | 0.4%  | -5,306             | 0.4%  | -378                 | 3.8%  | -4,848            | 3.7%  | -1,409                        | 7.1%  | -49,561            | 7.1%  |
| Self-reported ineligible                | -1,025        | 1.7%  | -23,382            | 1.7%  | -398                 | 4.0%  | -5,097            | 3.9%  | -1,505                        | 7.6%  | -52,947            | 7.6%  |
| Eligible sample                         | 59,248        | 98.3% | 1,367,965          | 98.3% | 9,590                | 96.0% | 125,059           | 96.1% | 18,233                        | 92.4% | 641,841            | 92.4% |
| Total: Not located                      | -107          | 0.2%  | -2,118             | 0.2%  | -41                  | 0.4%  | -435              | 0.3%  | -843                          | 4.3%  | -29,733            | 4.3%  |
| Not located (est. ineligible)           | -5,146        | 8.5%  | -109,698           | 7.9%  | -252                 | 2.5%  | -3,061            | 2.4%  | -431                          | 2.2%  | -15,179            | 2.2%  |
| Not located (est. eligible)             | -5,253        | 8.7%  | -111,816           | 8.0%  | -293                 | 2.9%  | -3,496            | 2.7%  | -1,274                        | 6.5%  | -44,912            | 6.5%  |
| Located sample                          | 53,995        | 89.6% | 1,256,149          | 90.3% | 9,297                | 93.1% | 121,563           | 93.4% | 16,959                        | 85.9% | 596,930            | 85.9% |
| Total: Nonresponse                      | -1,716        | 2.8%  | -38,255            | 2.7%  | -109                 | 1.1%  | -1,548            | 1.2%  | -117                          | 0.6%  | -4,101             | 0.6%  |
| Requested removal from mailings         | -449          | 0.7%  | -10,946            | 0.8%  | -108                 | 1.1%  | -1,473            | 1.1%  | -255                          | 1.3%  | -8,967             | 1.3%  |
| Returned blank                          | -542          | 0.9%  | -13,335            | 1.0%  | -96                  | 1.0%  | -1,321            | 1.0%  | -45                           | 0.2%  | -1,581             | 0.2%  |
| Skipped key questions                   | -876          | 1.5%  | -18,585            | 1.3%  | -980                 | 9.8%  | -10,880           | 8.4%  | -10,741                       | 54.4% | -378,437           | 54.5% |
| Did not return survey (est. ineligible) | -42,107       | 69.9% | -962,707           | 69.2% | -6,002               | 60.1% | -76,566           | 58.8% | -5,497                        | 27.8% | -193,191           | 27.8% |
| Did not return survey (est. eligible)   | -45,690       | 75.8% | -1,043,827         | 75.0% | -7,295               | 73.0% | -91,788           | 70.5% | -16,655                       | 84.4% | -586,278           | 84.4% |
| Usable responses from sample            | 8,305         | 13.8% | 212,322            | 15.3% | 2,002                | 20.0% | 29,775            | 22.9% | 304                           | 1.5%  | 10,652             | 1.5%  |

*Note:* The observed counts of the various response categories are somewhat skewed by the oversampling employed in the sample design.

Consequently, weighted counts are also provided because they are more representative of response propensity in the entire population.

<sup>a</sup> The categories labeled “Not located” and “Did not return a survey” have been broken down into additional subcategories labeled “(estimated ineligible)” and “(estimated eligible).” The ineligible counts are based on an ineligible rate = Self-report ineligibles/(Eligible Respondents + Unusable responses + Self-reported ineligibles). Unusable responses include sample members who requested removal, returned blank surveys, or skipped key questions. The eligible counts are the complement of the ineligible count.

**Table 16.**  
***Eligible Sample Location Rates, Response Rates, and Completion Rates***

| Type of Rate | Computation                                      | Active Component |                | Other Reserve    |                |
|--------------|--------------------------------------------------|------------------|----------------|------------------|----------------|
|              |                                                  | Unweighted Rates | Weighted Rates | Unweighted Rates | Weighted Rates |
| Location     | Adjusted located sample/Adjusted eligible sample | 92.0%            | 92.3%          | 93.5%            | 93.5%          |
| Completion   | Usable responses/Adjusted located sample         | 16.9%            | 18.0%          | 4.9%             | 4.9%           |
| Response     | Usable responses/Adjusted eligible sample        | 15.5%            | 16.6%          | 4.6%             | 4.6%           |

**Table 17.**  
***Rates for Full Sample and Stratification Level***

| Domain                  | Label                   | Sample | Usable Responses | Sum of Weights | Location Rate | Completion Rate | Response Rate |
|-------------------------|-------------------------|--------|------------------|----------------|---------------|-----------------|---------------|
| <b>Active Component</b> |                         |        |                  |                |               |                 |               |
| Sample                  | Sample                  | 70,261 | 10,307           | 1,521,503      | 92.3%         | 18.0%           | 16.6%         |
| Service                 | Army                    | 31,521 | 3,900            | 618,601        | 92.3%         | 14.9%           | 13.7%         |
|                         | Navy                    | 13,918 | 1,804            | 319,583        | 90.9%         | 16.5%           | 15.0%         |
|                         | Marine Corps            | 9,164  | 997              | 193,266        | 85.5%         | 14.7%           | 12.5%         |
|                         | Air Force               | 14,165 | 3,178            | 347,443        | 96.8%         | 24.6%           | 23.8%         |
|                         | Coast Guard             | 1,493  | 428              | 42,610         | 98.1%         | 31.3%           | 30.7%         |
| Pay Group               | E1-E5                   | 43,165 | 3,257            | 881,223        | 89.6%         | 9.5%            | 8.5%          |
|                         | E6-E9                   | 15,096 | 3,610            | 368,290        | 96.1%         | 26.2%           | 25.2%         |
|                         | W1-W5                   | 1,010  | 242              | 24,780         | 96.7%         | 25.5%           | 24.7%         |
|                         | O1-O3                   | 7,367  | 1,783            | 143,443        | 94.9%         | 26.6%           | 25.3%         |
|                         | O4-O6                   | 3,623  | 1,415            | 103,767        | 97.7%         | 41.9%           | 40.9%         |
| Gender                  | Male                    | 59,983 | 8,530            | 1,296,672      | 92.1%         | 17.6%           | 16.3%         |
|                         | Female                  | 10,278 | 1,777            | 224,831        | 93.4%         | 20.2%           | 18.8%         |
| Population Flag         | Active Duty             | 60,273 | 8,305            | 1,391,347      | 91.9%         | 17.2%           | 15.8%         |
|                         | Reserve AGR             | 9,988  | 2,002            | 130,156        | 97.3%         | 26.9%           | 26.2%         |
| Region                  | U.S. & U.S. territories | 55,161 | 8,668            | 1,217,561      | 92.3%         | 19.0%           | 17.5%         |
|                         | Overseas                | 15,100 | 1,639            | 303,942        | 92.6%         | 14.2%           | 13.2%         |
| Age                     | 18 - 24                 | 26,280 | 1,597            | 516,876        | 87.2%         | 7.6%            | 6.7%          |
|                         | 25 - 29                 | 16,903 | 1,941            | 369,406        | 93.0%         | 13.4%           | 12.5%         |
|                         | 30 - 34                 | 10,812 | 1,984            | 246,831        | 95.1%         | 20.7%           | 19.7%         |
|                         | 35 - 44                 | 12,530 | 3,413            | 304,987        | 96.5%         | 30.3%           | 29.3%         |
|                         | 45 +                    | 3,736  | 1,372            | 83,402         | 97.3%         | 42.4%           | 41.3%         |

**Table 17. (continued)**

| Domain               | Label                   | Sample | Usable Responses | Sum of Weights | Location Rate | Completion Rate | Response Rate |
|----------------------|-------------------------|--------|------------------|----------------|---------------|-----------------|---------------|
| <b>Other Reserve</b> |                         |        |                  |                |               |                 |               |
| Sample               | Sample                  | 19,738 | 304              | 694,788        | 93.5%         | 4.9%            | 4.6%          |
| Service              | U.S. & U.S. territories | 19,540 | 293              | 689,024        | 93.5%         | 4.8%            | 4.5%          |
|                      | Overseas                | 198    | 11               | 5,764          | 99.0%         | 11.2%           | 11.1%         |
|                      | Army                    | 12,867 | 166              | 453,239        | 95.6%         | 3.9%            | 3.7%          |
|                      | Navy                    | 1,377  | 25               | 48,488         | 98.7%         | 5.9%            | 5.8%          |
|                      | Marine Corps            | 956    | 9                | 33,692         | 53.0%         | 4.4%            | 2.3%          |
| Pay Group            | Air Force               | 4,340  | 103              | 152,386        | 94.4%         | 7.6%            | 7.2%          |
|                      | Coast Guard             | 198    | 1                | 6,982          | 96.4%         | 2.3%            | 2.2%          |
|                      | 18 - 24                 | 5,503  | 27               | 193,857        | 86.7%         | 1.3%            | 1.1%          |
|                      | 25 - 29                 | 4,296  | 35               | 151,247        | 92.9%         | 2.5%            | 2.3%          |
|                      | 30 - 34                 | 2,972  | 43               | 104,535        | 96.2%         | 4.7%            | 4.5%          |
| Gender               | 35 - 44                 | 3,995  | 101              | 140,584        | 97.9%         | 7.7%            | 7.5%          |
|                      | 45 +                    | 2,972  | 98               | 104,566        | 98.4%         | 10.5%           | 10.3%         |
| Population Flag      | E1-E5                   | 12,861 | 98               | 452,868        | 90.9%         | 2.3%            | 2.1%          |
|                      | E6-E9                   | 4,171  | 108              | 146,765        | 98.8%         | 8.3%            | 8.2%          |
| Region               | W1-W5                   | 197    | 6                | 6,934          | 99.5%         | 16.6%           | 16.5%         |
|                      | O1-O3                   | 1,344  | 42               | 47,306         | 97.1%         | 7.3%            | 7.1%          |
| Age                  | O4-O6                   | 1,165  | 50               | 40,914         | 97.8%         | 14.5%           | 14.2%         |
|                      | Other Reserve           | 19,738 | 304              | 694,788        | 93.5%         | 4.9%            | 4.6%          |
|                      | Male                    | 16,115 | 248              | 567,217        | 93.0%         | 4.9%            | 4.6%          |
|                      | Female                  | 3,623  | 56               | 127,571        | 95.6%         | 4.7%            | 4.5%          |





## References

- American Association for Public Opinion Research. (2011). *Standard definitions: Final dispositions of case codes and outcome rates for surveys*. Ann Arbor, MI: Author.
- Chromy, J. R. (1987). Design optimization with multiple objectives. In *Proceedings of the Section on Survey Research Methods, presented at the annual meeting of the American Statistical Association, San Francisco, CA, August 17-20, 1987* (pp. 194-199). Alexandria, VA: The Association.
- Council of American Survey Research Organizations. (1982). *On the definition of response rates: A special report of the CASRO Task Force on Completion Rates*, (Lester R Frankel, Chair). Port Jefferson, NY: Author.
- Dever, J. A., and Mason, R. E. (2003). *DMDC sample planning tool: Version 2.1*. Arlington, VA: DMDC.
- DMDC. (2012). *2012 Post-Election Voting Survey of the Active Duty Militarys: Tabulations of responses* (Report No. 2013-007). Alexandria, VA: Author.
- Mason, R. E., Wheelless, S. C., George, B. J., Dever, J. A., Riemer, R. A., and Elig, T. W. (1995). Sample allocation for the Status of the Armed Forces Surveys. In *Proceedings of the Section on Survey Research Methods, Volume II, American Statistical Association* (pp. 769–774). Alexandria, VA: The Association.



This page is reserved for insertion of Standard Form 298, page 1 -- this is best accomplished by replacing this page after the document has been converted to PDF

This page is reserved for insertion of Standard Form 298, page 2 -- this is best accomplished by replacing this page after the document has been converted to PDF



